

Application No. 10/074,600
Filed: February 12, 2002
TC Art Unit: 2157
Confirmation No.: 4837

REMARKS

In response to an Office Action mailed on July 5, 2005, Applicant respectfully requests that the Application be reconsidered in light of the following remarks.

The Examiner rejected claims 1-16 under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 6,331,985 to Coden ("Coden"). Coden discloses a ring network comprising a plurality of switches. By observing source addresses in network traffic passing through each switch, each switch learns the identity of network devices that are associated with ports of the switch and forwards data packets appropriately. (Column 9, lines 44-46.)

The switches are interconnected to form a ring network. Each switch includes at least one ring port and at least one local port. Communication links extend between the ring ports of respective pairs of the switches, thereby forming the ring network. Network elements, such as local area networks (LANs), are connected to the respective local ports. (Column 5, lines 62-66.)

Each switch is configured to forward received data packets along the ring or to a local port, based on a destination address in the received packet. Each switch includes a table that associates network devices with ports. The switch observes network traffic flowing through the switch and fills in the table with information identifying which network device(s) are associated with each port.

When the switch receives a data packet from the ring or via one of the local ports, the switch uses the destination address in the received packet, together with the information in the table, to switch the received packet to an appropriate port. If a received packet is destined to a device associated with one of the local ports, the packet is switched to the local port. On the other hand, if the packet is not destined to a network device associated with any of the local ports, the packet is forwarded to another switch along the ring. Thus, the packet is forwarded to a device on this or another switch, based on the destination address in the packet and the information in the table. (Column 5, line 66 to column 6, line 20.)

Each switch is also configured to remove packets that have circulated all the way around the ring, to prevent packets from being transmitted around the ring indefinitely. The switch reads the source addresses of packets as the packets are received from the ring. If the source address of a received packet corresponds to an address of a network device associated with one of the local ports

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of the switch, the switch removes and discards the packet, because the packet originated from a network device associated with the switch, and the packet has been passed completely around the ring. (Column 10, 29-45.) In another embodiment, a counter is added to each packet at the packet's originating switch, and each switch along the ring increments and checks the value of the counter. If the value of the counter indicates that the packet has circulated at least once around the network, the packet is removed and discarded. (Column 10 line 55-63.)

In contrast, the disclosed and claimed invention forwards received packets as either broadcast or unicast transmissions, depending on whether an association between a first bridge and an end station has been learned or not learned. Nowhere does Coden disclose selecting between broadcast or unicast transmissions, based on whether such an association has been learned or not.

The selection of unicast or broadcast transmission provides an advantage over Coden, because network bandwidth is not wasted transporting packets needlessly all the way around the ring when the association has been learned, and generality is not lost when the association has not been learned. If an association between the first bridge and the end station has been learned, unicast transmissions between the first and second bridges avoid transmitting packets along the rest of the ring, thereby freeing network bandwidth for other purposes. However, if the association between the first bridge and the end station has not been learned, broadcast transmissions ensure that packets are delivered to the intended network elements.

As noted above, Coden chooses which port of the switch to use for forwarding the packet, based on the destination address of the packet and the table. Coden provides a detailed description of how data packets are processed. (Fig. 2, and column 13, line 22 to column 14, line 43.) However, Coden does not disclose or suggest choosing between broadcast or unicast transmissions, as recited in claim 1.

No art of record, either alone or in combination, discloses or suggests a data communications network that includes a bridge operative to learn an association between a first bridge and an end station, and upon receiving a packet destined for the end station: (i) to forward the received packet as a broadcast transmission on the ring in the event that the association between the first bridge and the end station has not yet been learned and (ii) to forward the received packet as a unicast transmission to the first bridge on the ring in the event that the association between the first

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bridge and the end station has been learned, as recited in claim 1. (Emphasis added.) For at least this reason, claim 1 is believed to be allowable.


Claims 2-8 depend directly or indirectly from claim 1. Claims 2-8 are, therefore, believed to be allowable, for at least the reasons discussed above with respect to claim 1.

The Examiner rejected claims 9-16 for essentially the same reasons given for rejecting claims 1-8. Claims 1-8 are believed to be allowable, for at least the reasons discussed above with respect to claim 1.

For all the foregoing reasons, it is respectfully submitted that the present Application is in a condition for allowance, and such action is earnestly solicited. The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present Application.

Respectfully submitted,

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